

Combating Post-Traumatic Stress Disorder in Nurses by Improving Sleep

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ABSTRACT

Post-traumatic stress disorder (PTSD) is a growing health concern due to its grave impact on nurses' health and patient safety. Nursing inherently carries the risk of developing PTSD. This risk is exacerbated by shift work and resultant sleep disturbances. In recent years, much has been discovered regarding the benefits of REM sleep and its important role in reducing the intensity of PTSD symptoms. This article describes how nurses can prevent and improve the symptoms of Post-Traumatic Stress Disorder through interventions to optimize sleep. Interventions to reduce PTSD symptoms in nurses struggling with shift work related sleep disturbances are provided. By improving sleep, nurses can reduce not only the symptoms of PTSD, but also the risk of developing the disorder.

Keywords: Mental Health, Post Traumatic Stress Disorder, Sleep Deprivation, Sleep.

ABBREVIATIONS

PTSD: Post-Traumatic Stress Disorder; REM: Rapid Eye Movement; NSF: National Sleep Foundation; EMDR: Eye Movement Desensitization and Reprocessing; CBTi: Cognitive Behavioral Therapy for Insomnia.

INTRODUCTION

Nurses have a high risk of developing PTSD [1]. PTSD and sleep are intricately and conversely associated. Sleep disturbance is a factor that can lead to PTSD, and sleep disturbance is also a symptom of PTSD. Specifically, disturbances in rapid eye movement (REM) sleep contribute to the onset and continuance of PTSD [2]. Nurses can combat the risk of PTSD and lessen symptoms of the disorder by using techniques that optimize sleep [3]. This article summarizes research identifying the causes of sleep disorders for nurses, and proven strategies to optimize sleep in order to combat PTSD.

Post-Traumatic Stress Disorder

Post-Traumatic Stress Disorder (PTSD) is defined by the American Psychiatric Association (2020) [4] as a psychological disorder that can

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be experienced after directly or indirectly witnessing a traumatic event. PTSD is a growing concern for the nursing profession, with almost 96% of nurses reporting having at least one symptom of PTSD and almost 21% meeting the criteria for a clinical diagnosis of PTSD [5]. The prevalence of the disorder is concerning because of its detrimental impact on nurses, patients, and healthcare systems. PTSD and sleep disturbances significantly threaten the health of nurses and their quality of life [6]. Both sleep and PTSD play a critical role in immune system regulation and short sleep and fragmented sleeps as well as PTSD contribute to systemic inflammation [6]. PTSD is associated with compassion fatigue, reduced productivity, disengagement, medication errors, and lower quality of care [7]. The diminished concentration and cognitive ability associated with PTSD leads to medication errors and sentinel events [8]. Healthcare organizations are affected by the increased costs from deleterious patient care, nurse absenteeism, and poor nurse retention [8].

Sleep Disruption in Nursing

Many nursing jobs require shift work, resulting in sleep disturbances. Shift work is defined by the National Sleep Foundation (NSF) (2023) [9] as work that takes place outside of the traditional hours of 9:00 am to 5:00 pm. Shift workers obtain up to 10 fewer hours of sleep per week than day shift workers, and many shift workers develop shift work disorder (SWD), which is a diagnosable circadian rhythm sleep-wake disorder characterized by excessive sleepiness during the waking period and insomnia when sleep is allowed [10].

During the COVID-19 pandemic, the prevalence of shift work sleep disorder was as high as 48.5%. Many shift workers are able to fall asleep quickly, but after several hours of daytime sleep, the increasing circadian alerting signal causes them to wake too soon. They are thus unable to maintain sleep, and they develop acute and chronic insufficient sleep [10]. Poor sleep quality and short sleep times impair coping and function, and prevent emotional regulation that occurs during sleep, contributing to PTSD symptoms [6].

The incidence of shift work sleep disorder among nurses is reported between 24.4% to 37.6%. According to the NSF (2023) [9], SWD causes insomnia, excessive sleepiness, and significant sleep loss, with the average person with shift work disorder losing one to four hours of sleep every night. With this type of circadian rhythm sleep-wake disorder, a nurse's sleep-wake rhythms become misaligned, resulting in

significant ongoing sleep problems [4].

Sleep Disturbance Leading to PTSD

Shift work is associated with mental health disorders including depression and post-traumatic stress disorder [9]. Nurses with the most diverse and severe sleep disturbances have been shown to have greater stress and PTSD symptoms and insomnia severity [11]. Sleep debt in particular places nurses at risk for PTSD as insomnia is associated with new-onset PTSD, and evidence shows that sleep fragmentation is a factor in the development of PTSD [12].

Disturbed sleep is a well-known symptom of PTSD, but interestingly, it is conversely a factor that significantly increases the risk of developing PTSD [13]. PTSD is associated with dysregulation of the rapid eye movement (REM) sleep cycle [9]. Altered sleep quality both before and after experiencing trauma has been found to be a mediating factor in the development of PTSD [12]. Continued sleep disturbances following trauma both maintain and exacerbate PTSD [14].

After witnessing or experiencing a traumatic event, the brain dissociates the trauma stimulus from the negative response during the REM sleep cycle, and this is how traumatic events are processed [15]. This process, referred to as memory extinction, helps regulate emotion and consolidate fear-inducing memories, diminishing the emotional charge of the traumatic memory [14]. Obtaining sleep directly after a traumatic event promotes memory extinction by decreasing the emotional intensity attached to traumatic memories [15]. Targeting sleep issues early in the treatment of trauma reduces the risk of developing PTSD [9].

Eye Movement Desensitization and Reprocessing and Ketamine

Eye Movement Desensitization and Reprocessing (EMDR) and Ketamine work similarly to REM sleep in decreasing PTSD symptoms. EMDR, a psychotherapy treatment developed in 1987, was specifically designed to alleviate the distress associated with traumatic memories and PTSD through rapid eye movement (EMDR Institute, 2020) [6]. It is believed that the biological mechanisms involved in rapid eye movement during the therapy session promote internal associations that allow clients to process traumatic memories and feelings [16].

Ketamine, a dissociative anesthetic, is used as a therapy for

treating PTSD [15]. Similar to EMDR, it reduces the potent effects of trauma. It works by disrupting the NMDA receptor in the brain involved in the response to intense experiences. Like REM sleep, Ketamine allows the intense emotions of trauma to be detached from the experience [15]. High NMDA receptor activity is a risk factor for the development of PTSD, and ketamine can be given prophylactically to reduce the likelihood of developing PTSD [17].

Strategies for Optimizing Sleep

Nurses need proven interventions to improve sleep disturbances in order to prevent PTSD. Targeted sleep treatment accelerates recovery from PTSD [3]. Obtaining consolidated sleep as well as sleep improvements yields better PTSD outcomes [14]. As shift workers, nurses face significant barriers to obtaining sufficient sleep. One of the biggest obstacles for nurses who work variable shifts is maintaining a consistent sleep/wake cycle. Although one can adapt to a new circadian clock, this is generally limited for shift workers [18]. Rotating 8-or 12-hour shifts causing circadian rhythm disruption are common among nurses [2]. The prevalence of shift work sleep disorder in nurses is as high as 48.5% [19]. This problem is significant because the brain never comes close to getting back all the sleep it has lost [20]. Prolonged sleep deprivation carried forward will continue to accumulate [20].

The National Sleep Foundation (2023) [21] defines sleep hygiene as keeping a stable sleep schedule and having daily routines that promote consistent, uninterrupted sleep. Cognitive behavioral therapy for insomnia (CBTi) is defined as a structured, evidence-based approach to combating insomnia. Unfortunately, many sleep hygiene and CBTi techniques are not appropriate for nurses who work variable shifts, because the nature of the therapies focuses on consistent sleep and wake times [22]. Complete circadian re-entrainment is only helpful if shift workers maintain a consistent sleep-wake schedule 7 days per week [10]. It is important for nurses who work variable shifts to know alternative practical and plausible ways to optimize sleep in order to improve mental health. Healthcare workers need sleep interventions that address these circadian rhythm challenges and the often limited time available for sleep [23].

A helpful intervention for shift workers is to use bright light therapy during the night shift. Light therapy is a simple, inexpensive treatment involving exposure to light for

30 minutes and has significant effects on sleep disturbances associated with PTSD, including reducing sleep disturbances and decreasing PTSD symptoms [24]. Using bright light therapy and wearing dark glasses on the way home from work has been shown to increase total sleep time in nurses [25].

Nurses should prioritize obtaining sleep within the first 24 hours following a traumatic event to help prevent PTSD. Sleeping within the first 24 hours after a traumatic experience helps to process and integrate the distressing [26]. Resting more than one day after a shift and increasing the spacing of night shifts can also help prevent shift work disorder [19].

Mindfulness is a strategy that can be used to break the cycle of sleep disturbance and PTSD symptoms [27]. The intervention consists of purposely directing one's attention to the present in a non-judgmental way, diminishing psychological arousal and increasing intentional control [28]. Having an increased awareness of emotions, and a non-judgmental perspective in the processing of emotions improves PTSD related sleep disturbance [27].

Other strategies suggested by the Sleep Foundation (2023) that can be incorporated for shift workers include keeping the sleeping environment cool and as dark as possible, reserving the bedroom for sleep and sex only, eating a healthy diet, taking a warm bath before sleeping, using white noise if you are sensitive to sound, and using meditation to avoid ruminating on racing thoughts.

CONCLUSION

Nurses face significant challenges when it comes to maintaining mental health and combating PTSD. Those challenges are exacerbated by shift work and the resulting sleep disturbances. The more that nurses can do to prioritize sleep and obtain sufficient REM sleep, the better their trauma response and overall mental health will be. EMDR and Ketamine are wonderful therapies that can also be beneficial in lessening PTSD. Several sleep strategies can be used to combat PTSD risk resulting from sleep disturbances. More studies need to be conducted to explore the benefits of specific sleep strategies for nurses who are experiencing PTSD and shift work related sleep disorders.

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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